Space Weather Forecast

Issued on Friday, 17 March 2023 at 01:25 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

Space Weather Forecast Headline: No significant activity expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low over the past 24 hours with isolated low level Common-class flares. There are currently nine sunspot regions on the visible disc. These are a mixture of mature spots and some more recently emerged spot groups. The majority of the regions are small, weak and either stable or weakly decaying. However, a new spot on the southeast limb appears to be the largest sunspot on the disc, and may be the leader spot of a significant region which is yet to emerge.

No Earth directed CME's have been observed in the past 24-hours.

Solar Wind / Geomagnetic Activity: The solar wind started the period at elevated levels, reaching a peak of 588km/s at 16/0034 UTC. This was due to ongoing enhancement from the 15th March, attributed to coronal mass ejection arrivals at Earth on 15 Mar and a stream of fast winds from a coronal hole. The important north-south component fluctuated north/south with weak strength. Geomagnetic activity was initially Active but quickly decreased to Quiet levels.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) has remained close to background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to remain Low or Very Low, with a slight chance of an isolated Moderate class flare, most probable from day 3 (19th) as new regions are expected to arrive from the far side.

Solar Wind / Geomagnetic Activity: Solar winds are expected to remain at slightly elevated levels through Days 1-2 (17-18 Mar) under the waning influence of coronal hole high speed stream effects and CME influence from arrivals on 15th Mar. Wind speeds continue to decline through Day 3 to reach background levels. Then a weak enhancement is possible late Day 3 (19 Mar), more likely through Day 4 (20th), as connection to a new coronal hole becomes established. No Earth directed CME's are expected during the forecast period.

Geomagnetic conditions are forecast to be largely Quiet, with a chance of isolated Unsettled intervals until late day 3 and through day 4. Then becoming Unsettled to Active with a slight chance of a G1/Minor Storm interval.

Energetic Particles / Solar Radiation: The count rate of energetic particles is expected to remain at or near background levels. No further significant enhancements are expected at present.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	10	10
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	1	1	1
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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